

NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Evaluation of a Fluorocarbon Plastic Used in Cryogenic Valve Seals

Tests were conducted to determine the independent and interacting effects of strain rate, temperature, crystallinity, and surface finish (smoothness) on the tensile strength of a commercial chlorotrifluoroethylene plastic (CTFE) used for lipseals in very fast-acting liquid oxygen valves. The tests were statistically designed to provide the maximum amount of significant data with a minimum number of test specimens.

Approximately 200 tests were performed at strain rates between 0.02 and 10,000 inches per minute and temperatures of 75° and -320°F. Specimens of CTFE representing two different crystalline aggregates and two surface finishes were subjected to the tests.

Analysis of the test data showed that temperature and strain rate had the most significant effect on the tensile strength of the material. Surface finish and crystallinity were relatively less significant. The effects of high strain rate on tensile strength were not the same at ambient (75°F) and cryogenic temperatures. The specimens appeared to fail in a two-step process at a strain rate of 10,000 inches per minute. Additional tests would be required at a temperature of -320°F and at strain rates between 1000 and 10,000 inches per minute to determine whether the maximum

tensile strength gradually decreases as the strain rate increases or whether it rapidly decreases at some critical strain rate. From the present data, however, it was concluded that machined medium-crystallinity seals can be used as a less-expensive replacement for molded low-crystallinity seals in fast-acting cryogenic-propellant valves.

Note:

Details may be obtained from:

Clearinghouse for Federal Scientific
and Technical Information
Springfield, Virginia 22151
Price \$3.00
Reference: B68-10523

Patent status:

No patent action is contemplated by NASA.

Source: R. E. Cierniak, J. H. Lieb,
and R. E. Mowers
of North American Rockwell Corporation
under contract to
Marshall Space Flight Center

(MFS-18189)

Category 03

THE GREAT A&M



During the 1915-16 school year, the Texas A&M University was the site of a major controversy. The university had been given a \$125,000 gift by the W. T. Waggoner family, which was to be used for the construction of a new dormitory building.

The Controversy

The class of 1916 proposed to build a dormitory and dedicated it to W. T. Waggoner.

The men of the class of 1916, through their class president, W. C. Clegg, proposed to name the dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so. The dormitory was to be built in the center of the university grounds, and the class of 1916 proposed to name it the W. T. Waggoner dormitory.

15-176

The class of 1916 proposed to name the dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so. The class of 1916 proposed to name the dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so.

Opposing Classes

The Other Classes

The class of 1916 proposed to name the dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so. The class of 1916 proposed to name the dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so.

15-176

15-176

The class of 1916 proposed to name the dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so.

Based on the information of the following case or report, will the Board of Regents, in its judgment, consider the proposed dormitory in honor of W. T. Waggoner, the proposed founder being the only man in the class to do so?